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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,942	09/18/2003	Richard Scott Bourgeois	128613	6523

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EXAMINER	
CHU, HELEN OK	
ART UNIT	**PAPER NUMBER**
1745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/665,942	BOURGEOIS, RICHARD SCOTT	
	Examiner	Art Unit	
	Helen O. Chu	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/21/07,3/6/07*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-15,17-21,38 and 40-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-15,17-21,38 and 40-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's Amendments and Arguments/Remarks were received on March 6 and June 21, 2007. These Amendments and Arguments/Remarks are duplicates and therefore the Examiner will hereby address Amendments and Arguments/Remarks submitted June 21, 2007 to further prosecute the claims. Claims 1, 3, 10, 17, 38 are amended. Claims 2, 16 and 39 are cancelled.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a) are withdrawn because Applicant has cancelled the claims.

Claim Rejections - 35 USC § 103

4. The rejections under 35 U.S.C 103(a), on claims 1, 3-5, 7-16, 18-21, 38, 40, 43 are withdrawn because Applicant has amended the claims.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5, 7-15, 18-21, 38, 40, 41, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossel (US Patent 6,344,290 B1) in view of Oko et al (US Patent 6,218,038 B1) as evidenced by Wygnaski (US Patent 7,021,603 B3).

3. In regard to claims 1, 3, 5, 7, 9, 11-15, 19, 20 and 38, the Bossel reference discloses a, fuel cell stack assembly comprising: fuel cell stacks with fuel cells separated by separating plates (Applicant's interconnector, (Figure 2, Component 1) which electrically coupled together such that at least one sealed (Figure 2, Component 23) manifold (Figure 2, Component 6). The left side of the manifold is a wall that defines a chamber (Figure 3A-F, Component 5) and the wall comprising at least one opening extending therethrough (Figure 3A-F, Component 4) in flow communication with said chamber; and at least one fuel cell isolation device coupled in flow communication with each said fuel cell hollow manifold but the Bossel reference does not disclose a fuel cell isolation device to vary positions during fuel cell stack assembly operation for selectively stopping fluid flow through at least one of said fuel cells. However, the Oko et al. reference discloses a magnetic valve which includes a long flat piece (Applicant's jumper) that selectively regulate communication of the fluid between the manifold passageway and the channels (Abstract) so if a fuel cell fails shutting down the power of the entire fuel cell is not require (Column 2, Lines 13-17). Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to incorporate the magnetic valve in front of all fluid passageways and channels as disclosed by Oko et al. of the fuel cell stack with fluid passageways between each separator as disclosed by

Bossel in order maintain the fuel cell without any down time of operations. In addition, when there is no fluid flowing through a fuel cell the MEA cannot electrochemically react and cannot produce any currents, therefore would isolate itself from the other fuel cell. Furthermore, the magnetic valves can be mechanically moved by a motor and a magnet assembly (Applicant's actuator) that may be mounted outside of the plate module and be positioned to remotely control one of the valves. In some embodiments external magnets may be used and some embodiments the positions of magnets can be manually changed (Column 5, Lines 45-53). The Wynaski reference provides evidence that magnetic actuators exist to control the opening and closing of the valves which resembles the Oko et al. reference of the motor and magnet assembly. Futhermore, the Bossell and the Oko et al. reference illustrates a fuel cell stack which includes more than two fuel cell.

In regard to claims 4, 40, the Oko et al. illustrates that the separation length between two fuels is smaller then the length of isolation device. Figure 9 illustrates a bipolar plate of which an MEA is one side of the bipolar plate (Component 60) and another fuel cell is on the other side of the bipolar plate. The separation device (Component 199) extends pass the two fuel cells.

In regards to claim 8 and 14, the Oko et al. reference illustrates fuel cell further comprises at least one keyway (Figure 6, Component 107) positioned adjacent at least one of said manifold first end and said manifold second end, said keyway facilitates positioning said at least one fuel cell isolation device.

In regards to claim 10, the Oko et al. reference illustrates a valve (Figure 9, Component 199), which controls the movement of the magnet (Figure 9, Component 200) in fuel inlets and outlets.

In regards to claim 18 and 21, the Oko et al. reference discloses a keyway that is shared between the anode cooler plate of one fuel cell and a shared bipolar plate of another cell (Figure 6). The Examiner has interpreted this claim based on Figure 7 of Applicant's application.

In regards to claim 41, the magnets have magnetic fields that are capable of carrying a transferring current, therefore, it obvious that the magnet can electrically couple one separator plate to another separator plate.

In regards to claim 43, the Oko et al. reference discloses a magnet (Figure 6, Component 145) with extending tabs (Figure 6, Component 142) to position the magnet relative to the fuel cell stack

4. Claims 6, 17, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossel (US Patent 6,344,290 B1) in view of Oko et al. (US Patent 6,218,038 B1), as applied to claims 1, 11, 38, and in further view of Hsu (US Patent 5,833,822)

The Bossel and Oko et al. reference discloses the elements of claims 1, 11, 38 but does not disclose, fuel cell isolation device comprises an external surface; at least one of a wire mesh, a metallic seal, and a brush extends outwardly from said external surface. However, the Hsu reference discloses a flow adjustment element made of wire mesh to restrict the flow of the input reactants into the reactant flow passageways (Column 5, Lines 20-23). Therefore, it would be obvious to one ordinary skill at the time

the invention was made to use the magnetic valve for the fuel passages as disclosed by Oko et al. and the wire mesh as disclosed by Hsu to further prevent any seepage of the fluids to the passageways.

Response to Arguments

5. Applicant's arguments filed on June 21, 2007 have been fully considered but they are not persuasive.

Applicant's principal arguments are

A) No specific rejection of claim 41 was set forth in the Office Action. Accordinaly Applicant would solicit allowance of the claim, or its rejection in a subsequent non-Final Office Action.

B) The pending claims must be given an interpretation that is reasonable and consistent with the specification...One should rely heavily on the written description for guidance as to the meaning of the claims.

C) The burden of establishing a prima facie case of obviousness falls on the Examiner...Accordingly, to establish a prima facie case, the Examiner must not only show that the combinations includes all of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the reference. Ex parte Clapp, 227 U.S.P.Q. 972 (B.P.A.I. 1985)

D) When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than

the hindsight suggest the desirably, and thus obviousness of making the combination...In re Fine, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988)

E) Oko clearly lacks such a dual of electrically isolating (bypassing) the failed cell and stopping the flow of fuel (and or oxidant) to the cell. Thus the cited reference individually or hypothetically combined do no support a prima facie case of obviousness of independent claims 1, 11 and 38.

In response to Applicant's arguments, please consider the following.

A) Claim 41 was originally rejected in Office Action dated 11/13/2006. Please refer to Page 5, Paragraph 5 of the office action.

B), C), D) and E) The Oko reference states that the invention is an improvement from the course of its lifetime, one or more of the fuel cells of the fuel cell stack may fail. When this occurs, the entire fuel cell stack typically must be shut down, and thus, the power that the fuel cell stack furnishes is turned off (Column 2, Lines 13-17; Column 3, Lines 1-5) Therefore, the Oko reference does teach a bypass. Furthermore, the recitation "electrically isolating" does not mean to "bypass;" an open circuit is can still be electrically isolating.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, Supervisor Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

TRACY DOVE
PRIMARY EXAMINER
8/07